

A main controller sets an exposure control target value according to the transmittance of an optical system measured by means of a sensor prior to exposure or estimated by predetermined calculation, and exposure is controlled according to the set exposure control target value while a reticle pattern is being transferred onto a wafer through the optical system. Since the exposure energy provided to the image surface changes in a unit time per unit area in accordance with the transmittance of the optical system, the exposure control target value is set according to the transmittance of the optical system, and exposure is controlled according to the set control target value. Thus, exposure with a high precision is achieved without being influenced by the variation of the transmittance.